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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,095	10/17/2003	Xubin Song	10541-1868	9092

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EXAMINER

NGUYEN, THU V

ART UNIT PAPER NUMBER

3661

DATE MAILED: 08/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/688,095	<b>Applicant(s)</b> SONG ET AL.	
	<b>Examiner</b> Thu Nguyen	<b>Art Unit</b> 3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☒ Claim(s) 11-13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/17/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Specification*

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o).

The specification does not disclose that the bounce, pitch and roll transmissibilities vary with respect to a frequency of vibration disclosed in claim 1, lines 2-4.

2. The disclosure is objected to because of the following informalities:
  - a. In the specification line 5 of paragraph [0023], the disclosed “reservoir 32 through HP valve 24” should be corrected to “reservoir 32 through LP valve 30”.
  - b. In the specification line 7 of paragraph [0023], the disclosed “An isolator 24 disposed between HP valve 24” should be corrected to “An isolator 24 disposed between HP valve 26”.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. In claim 1, lines 10-11, the claimed “dependent on minimization of the bounce, pitch, and roll transmissibility” is ambiguous, it is not clear if it is the “control signal”, or if it is the “bounce component, the roll component, and the pitch component” that should depend on the minimization. Further, it is not clear how the minimization of the bounce, pitch and roll transmissibility be used in determining the control signal. The specification does not seem to disclose such the utilization either.
- b. Other claims are rejected as being dependent on the rejected base claim.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki (US 5,911,768).

As per claim 1, Sasaki teaches a system for controlling an active suspension of a vehicle having bounce, roll and pitch transmissibility, the system comprises: a tunable device for adjusting stiffness and damping of the active suspension (col.3, lines 14-48, lines 51-55; col.4, lines 53-67; col.5, lines 1-19); a controller for sensing the frequencies of vibration and providing a control signal based on a bounce, roll, and pitch components at the sense frequency (col.5, lines 66-67; col.6, lines 1-1-25). Sasaki does not explicitly disclose that the bounce, pitch and roll

vary with respect to a frequency of vibration, and minimizing the bounce, pitch and roll transmissibility. However, since Sasaki teaches using sensed vertical acceleration to determining the bounce, pitch and roll (col.5, lines 34-50), further, it would have been well known that the vertical acceleration vary with the frequency of vibration, Sasaki obviously encompasses teaching the variation of the bounce, pitch, and roll according to the variation of vibration frequency. Furthermore, Sasaki teaches ensuring comfort of the ride by controlling the suspension system by minimizing vibration caused by bounce, pitch and roll (col.10, lines 17-30). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to minimize the bounce, pitch and roll in order to obtain minimizing vibration.

As per claim 2-3, using a compressible fluid strut as a tunable device would have been well known.

As per claim 4, 6, since Sasaki teaches including suspension control in hard and soft range (col.8, lines 1-20), and since the roll and dive/squat control component are well known to be in stiff suspension range, and the ride control component is well known to be in soft suspension range, Sasaki obviously encompasses teaching the ride, handling and dive/squad control component.

As per claim 5, 7, Sasaki teaches adjusting the hard and soft degree for suspension control (col.4, lines 53-67; col.5, lines 1-29), and Sasaki teaches a ride control based on the

bounce, pitch and roll (col.6, lines 1-16; col.10, lines 17-67; col.11, lines 1-67; col.12, lines 1-6).

Further selecting values  $\beta_i$ ,  $\alpha_i$  such that the sum of  $\beta_i$ , or  $\alpha_i$  is one so that the control signal and the ride control is determined from a ratio of degree of stiffness, or ratios of bounce, pitches and roll would have been both well known and obvious in mathematic concept.

7. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki (US 5,911,768) in view of Sugasawa et al (US 5,075,855).

As per claim 8-10, Sugasawa teaches including a plurality of control strategies corresponding to a plurality of frequency ranges, and control based on a control strategy (abstract; col.4, lines 48-59; col.12, lines 31-45). Further with respect to claim 9-10, Sugawaga does not explicitly teach the claimed frequency range and the corresponding control strategy. However, since Sugawaga teaches several frequency ranges corresponding to different characteristic of the road and vibration of the vehicle (col.18, lines 25-50), and the capability of varying damping force (col.12, lines 35-45), providing frequency range and strategies as claimed are just an obvious design choice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide different control strategies according to different frequency ranges as taught by Sugasawa in the system of Sasaki in order to adjust the stiffness of the suspension system according to different vibration frequencies.

***Allowable Subject Matter***

8. Claims 11-13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

Prior arts of record do not disclose a system for controlling an active suspension of a vehicle taught in claim 1 in combination with claim 10-11, or 12 or 13 in which the bounce control component, the pitch control component, and the roll control component are calculated as taught in claims 11m 12 and 13.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(703) 305-7687, (for formal communications intended for entry)

**Or:**

(703) 305-7687 (for informal or draft communications, please label  
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park V, 2451  
Crystal Drive, Arlington, VA., Seventh Floor (Receptionist).

Art Unit: 3661

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Nguyen whose telephone number is (703) 306-9130. The examiner can normally be reached on Monday-Thursday from 8:00 am to 6:00 pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black, can be reached on (703) 305-8233. The fax phone number for this Group is (703) 305-7687.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1111.



**THU V. NGUYEN**  
**PRIMARY EXAMINER**  
August 19, 2004